Parcel	Trench Unit	Overall score (0,1, or 2)	Reviewer	Box Plots	Q-Q Plots	Rounds of excavation	Gamma scan or static concerns	On vs offsite lab	Time Series	Suspect name (1=yes, 0=no)	Name, if suspect	Name, if not suspect	Signs of falsifying (1=Yes, 0=no)	Signs of falsification summary	Failure to follow workplan (1=Y, 0=N)	Signs of failure to follow workplan	Comments - Other	Followup needed, e.g. questions for Navy	See additional EPA statistical analysis	Recommend for PCA (1 or 0)	Talk to group	No gamma static and scan						
D-2	TU031	0	KB		Bi-214 and K-40 graphs have slope breaks suggesting multiple populations	1	Gamma static (4,997 – 6,144 cpm) and gamma scan (from 4,800 to 6,100 cpm) results unusually consistent.	Form notes, "There are three available revisions of the TU031 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 3 and 14, is different in all three revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining two versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change; however, the collection time is inconsistent, as well as the reported results. Results from the most recent revision (R3) was used in the comparison of onsite and offsite data."		0		J. Rosenhagen	1	Three sets of lab results, which is odd.	1	No sampler/surveyor name in SUPR.	Probably OK, some doubt due to multiple populations, unusually consistent gamma statics and gamma scan, and 3 sets of lab results.											
D-2	TU032	2	KB	Bi-214 has low variability. Form notes, "Unusual distribution of K-40 results. Values appear higher than surrounding TUs."	Ac-228, Bi-214, and K-40 plots have slope breaks indicating multiple populations	1	Form notes consistent.	Form notes, "There are four available revisions of the TU032 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 4 and 12, is different in the first, second, and fourth revisions. The same results are reported in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change. Results from the most recent revision (R4) was used in the comparison of onsite and offsite data. "		1	R. Zahensky		1	1. Significant inconsistencies in analytical data - and there are 4 different SUPR reports. 2. Unusual K-40 distribution that is inconsistent with adjacent TUs. 3. Low variability Bi-214.	1	No sampler/surveyor name in SUPR.	1. Inconsistent with adjacent TUs. Form notes, "Ac-228 and Bi-214 results consistent with data collected from TU031, TU038 and TU135 K-40 results display higher mean than adjacent TU031 and TU038, but are consistent with TU135 Ac-228 and Bi-214 results below 0 also observed at TU038." 2. Resample due to inconsistencies, low variability Bi-214.											
D-2	TU034	2	KB	Bi-214 has low variability.	Bi-214 and K-40 graphs have slope breaks suggesting multiple populations. Some K-40 results elevated compared to rest of data set.	1	1. For gamma statics, Form notes, "Gamma static results range from 3,629 – 5,627 cpm. Gamma static dataset is inconsistent with scan data and consistent with final systematic sample results." 2. Gamma scan has very low range (800 cpm), form notes, "Gamma scan range reported at 4,800 – 5,600 cpm, with an investigation level of 5,751 cpm. Gamma scan dataset is inconsistent with static data and consistent with final systematic sample results.	Inconsistences. Form notes, "There are three available revisions of the TU034 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 3 and 13, is different in all three revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining two versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change. Results from the most recent revision (R3) was used in the comparison of onsite and offsite data."		0		P. Vigil	1	1. Unusually low range for gamma scan, which is inconsistent with the gamma static data.	1	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, evidence of multiple populations, unusually low range for gamma scan, inconsistent gamma scan and gamma statics, and the fact that there are 3 versions of the SUPR that provide inconsistent off-site lab results. Form notes evidence of falsification of gamma statics, but should have caught the unusually low range for the gamma scan.											
D-2	TU035	2	KB	Bi-214 has low variability	Bi-214 and K-40 graphs have slope breaks indicating multiple populations. However, the form notes, "The K-40 FSS results may include multiple data populations, but this is not reflected in the Ac-228 or Bi-214 data."	6	Gamma scan and gamma static ranges are very consistent (e.g., max of 6100 cpm for gamma scan and 6185 cpm for gamma statics)	Four versions of SUPR; off-site lab results vary. Form also notes, "One confirmatory/biased sample (117) and two final systematic samples (126 and 129) were sent to the offsite laboratory for confirmation. Onsite lab reported a negative Ra-226 activity for sample 129 while the offsite lab reported an activity of 0.412 pCi/g. The onsite lab reported a Ra-226 value (3.1948 pCi/g) 1.5 times greater than the offsite lab (2.08 pCi/g); however, both values were above the investigation level. "		0		C. Schultz	1	1. Two samples analyzed on different days than the rest of the FSS samples (one the day before, the other 3 days later than the rest), which suggests potential for switching out samples. 2. Form notes, "There are four available revisions of the TU032 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the three samples, 117, 126 and 129, is different in the first, second, and fourth revisions. The same results are reported in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change."	1	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, evidence of multiple populations, analysis of 2 FSS samples on different days, the fact that there are 4 versions of the SUPR that provide inconsistent off-site lab results.											
D-2	TU038	0	KB		Ac-228, Bi-214, and K-40 plots have slope breaks indicating multiple populations	1		Four versions of SUPR. Form notes, "There are four available revisions of the TU038 SUPR. The onsite lab data does not appear to change; however, the offsite lab data reported for the two samples, 2 and 17, is different in the first, second, and fourth revisions. The same results are reported in the 2nd and 3rd revisions. Eberline was used as the offsite lab in the first version and TestAmerica was used as the offsite lab for the remaining three versions. When comparing the versions where TestAmerica was the offsite laboratory, the collection date, laboratory receipt date, preparation date, and analysis date do not change."		0		P. Vigil	0		0													
D-2	TU134	2	KB	For K-40 and Bi-214, Bias samples have lower variability and a lower mean than the FSS_SYS samples. FSS_SYS for Bi-214 also have low variability.	K-40 and Ac-228 FSS_SYS and FSS_Bias have slope breaks indicating multiple populations.	1	Form notes, "Gamma static results range from 1,444 – 4,823 cpm. Gamma static dataset inconsistent with scan data and consistent with final systematic sample results." For Gamma Scan, form notes, "Gamma scan performed on 04/21/2009 at 11:30, coinciding with the collection time of sample 4. Gamma scan dataset (2,200 to 6,400 cpm; investigation level 7,000 cpm) consistent with final systematic sample results and inconsistent with static data."		Form notes for Ac-228, " Final systematic samples indicate the potential for different data populations."	1	A. Smith		1	Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static measurements."	1	No sampler/surveyor name in SUPR.	Resample due to low variability Bi-214, bias samples having lower mean and variability than FSS_SYS, evidence of falsification of gamma statics, and evidence for multiple populations in K-40 and Ac-228 datasets.											
UC-1	TU133	2	KB	Bi-214 and K-40 FSS_SYS have low variability	K-40 plots for SYS, Bias, char have different slopes and FSS_SYS has slope breaks, indicating multiple populations. This appears to be the case for Ac-228 and Bi-214 as well, but the variability is lower, so it is harder to distinguish.	2	Gamma static measurements covered a relatively low range.			1	C. Bell		1	Failure to collect samples from bottom of trench to delineate due to contamination in 4 of 7 pipe segments, allegedly due to presence of native rock; however, this problem was not noted for any of the other characterization, SYS, or bias samples.	1	1. Did not collect characterization samples from bottom of trench to address contamination in pipe segments. 2. No sampler/surveyor name listed in SUPR	1. Required characterization samples (due to detection of Cs-137 in 4 of 7 samples from pipe sediment) were not collected along the bottom of the trench, allegedly due to presence of native rock. This was a flag for the Navy to select other TUs for resampling. Not clear why this one was not. 2. Resample due to multiple populations, low variability FSS_SYS for K-40 and Bi-214, and failure to sample bottom of trench.											
UC-1	TU139	2	KB	FSS_SYS K-40 samples had low variability, and this was lower than the Bias samples	Low variability Ac-228 and Bi-214. K-40 plots for SYS and Bias had slope breaks, indicating multiple populations.	2	Form notes, "Gamma static measurements ranged between 3,920 and 4,485 cpm – an abnormally narrow range for in situ measurements for heterogeneous soil in a deep trench geometry. The range of gamma static measurements are consistent with the gamma scan range (see below), but not with the results of the FSS dataset. No reviewer or review date is listed. " and "Gamma scan measurements ranged between 1,860 and 6,790 cpm, which is consistent with the range of gamma static data and the FSS dataset and is below the IL of 7,013 cpm."			1	A. Smith		1	1. 2 FSS Samples counted 4 days after the rest, suggesting the potential for substitution. 2. Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static measurements."	1	No sampler/surveyor name in SUPR. No reviewer signature for gamma statics.	Resample due to evidence for falsification of gamma statics (narrow range, inconsistent with FSS data), analysis of 2 samples 2 days after the rest, and evidence for multiple populations in Ac-228, Bi-214, and K-40 data sets.											
UC-1	TU146	2	KB	Bi-214 FSS_SYS had very low variability.	K-40 FSS_SYS plot has slope breaks indicating multiple populations	2	Form notes for gamma statics, "Gamma static measurements ranged between 4,360 and 5,009 cpm, an unusually narrow range for heterogeneous soils in deep trench geometry. This very narrow range of gamma static measurements is not consistent with the gamma scan range or the FSS dataset. " For gamma scan, form notes, "The gamma scan range is reported as between 1,930 and 5,590 cpm, which is not consistent with gamma static measurements and the FSS dataset. "			1	C. Bell		1	Form notes, "Based on the findings of this evaluation, evidence of potential data falsification was identified in the gamma static measurements."	1	1. Required characterization samples not collected from bottom of trench. 2. No sampler/surveyor name in SUPR.	1. Required characterization samples (due to detection of Cs-137 in 5 of 6 samples and Ra-226 in 1 of 6 samples of pipe sediment) were not collected along the bottom of the trench, allegedly due to presence of native rock. Problem was not noted for collection of other samples. This was a flag for the Navy to select other TUs for resampling. Not clear why this one was not. 2. Resample due to evidence of falsification of gamma statics, low variability Bi-214, multiple populations of K-40, and failure to collect required characterization samples from the bottom of the trench.											
UC-3	TU170	2	KB	1. Bi-214 FSS_SYS had very low variability. 2. Form notes, "Difference between mean and median indicate potential for two data sets."	For Ac-228, Bi-214, and K-40, FSS_SYS and bias plots have different slopes, indicating different populations. Ac-228, B-214, and K-40 FSS_SYS and bias plots have slope breaks indicating multiple populations in the data set.	4	Static survey has lower variability than expected. Gamma scan survey performed before collection of FSS samples, suggesting potential that samples were collected from areas with lower activity.			1	R. Roberson		1	One FSS sample was counted 3 days after all of the others, suggesting potential substitution.	1	1. No sampler/surveyor name in SUPR. 2. Static survey date and time were not provided in the SUPR.	Resample due to potential substitution of one sample (counted 3 days later), low variability static survey, gamma scan completed before FSS samples collected, low variability B-214 FSS_SYS, and multiple lines of evidence for at least two different populations in the data set.											
UC-3	TU172	0	KB	1. Extremely low variability Bi-214 FSS_SYS. 2. Form notes, " K-40 has a high standard deviation."	Bi-214 and K-40 plots have slope breaks indicating multiple populations. Form notes, "K-40 shows multiple soil concentration populations."	1		Inconsistent due to 6 samples from onsite lab having 0 or negative results for Bi-214, Ac-228, and K-40		1	C. Bell		0		1	No sampler/surveyor name in SUPR.	Form notes, "RASO has identified bedding sands high in NORM in Parcel UC-3, when excavations remove all the bedding sand, changes between subsequent excavation layers can be dramatic. " This may explain the multiple populations.											
UC-3	TU173	2	KB	Bi-214 has low variability.	K-40 plot has slope breaks indicating multiple populations. Ac-228 may also have slope breaks but data set has low variability so it is difficult to tell.	1	Low range for gamma statics. Form notes for gamma statics, "Gamma static form was undated. Static range 3,298–4,299 cpm. Gamma static data was inconsistent with scan data." Form notes for gamma scan, "Scan Range 5,480–7,290 cpm, with an investigation level of 7,401 cpm. Gama scan data inconsistent with static data."	Form notes, "Sample 3 Ac-228, CO60 offsite results exceeds onsite x10. ES154 offsite exceeds onsite result x10."	Form notes for Ac-228 and Bi-214, "Final systematic samples indicate the potential for at least two different data populations."	1	A. Smith		1	1. One FSS sample was counted 3 days after all of the others, suggesting potential substitution. 2. Form notes, "evidence of potential data falsification was identified in the gamma static measurements."	1	No sampler/surveyor name in SUPR.	Resample due to potential substitution of one sample (counted 3 days later), low variability static survey that was inconsistent with the gamma scan data, low variability B-214 FSS_SYS, and evidence multiple populations in the data set.											
UC-3	TU174	0	TJ	815 NRDL Building	TU 184 and TU 187	424	Low variability Bi-214.	K-40 FSS_SYS plot has slope breaks indicating the potential for at least two different populations.	1	1. No date or time was recorded for the static survey measurements in SUPR. 2. Static survey measurements are on the higher side of the scan range and inconsistent with scan data (range much smaller than scan data range reported).	1. FSS samples were collected on 08/17/2010 at 10:00 before FSS sample collection. 2. FSS samples were analyzed on 8/18/2010. 3. Gamma scan dataset is inconsistent with static data (range of scan much larger than static data). Scan surveys and systematic sampling were performed in TU174. TU174 had a total surface area of 472 square meters. No measurements above the investigation level were identified during the performance of gamma scans in TU174. Therefore, no additional surveys or sampling was performed.	Limited Offsite analysis performed on FSS samples.	NA	1	C. Bell	NA	0	NA	1	No sampler/surveyor name in SUPR. No static survey date and time.	Static survey date and time not provided in SUPR. Gamma static dataset inconsistent with scan data (range much smaller than scan data range reported)	Explain why the gamma static data is inconsistent with gamma scan data range?	NA	NA	NA	NA	NFA	
UC-3	TU176	0	TJ	NA	TU 170, TU 175, TU 183	913	Form notes, "Bi-214 results have somewhat low variability, but not lower than adjacent units."	Ac-228 and K-40 plots have slope breaks suggesting multiple populations.	1	1. Static survey date and time were not provided in SUPR. Gamma static dataset consistent with scan data. 2. Static range = 6,577 – 7,189. Scan Range = 4,210 – 7,180 (investigation level = 7,240 cpm)	Final systematic samples 01 through 18 were collected on 08/19/10. Most samples were counted on 08/20/17; one sample was counted on 08/23/17 (next working day). The three lowest activity Ac-228 samples (2, 8, 14) were all taken from the southern sidewall, but are not adjacent. Other samples on the same sidewall (4, 6, 10, 12) have typical activities.	Two samples were analyzed offsite (07, 14). Results for sample 14 are inconsistent: K-40 offsite was -0.0214 versus onsite value of 4.2189 pCi/g; Bi-214 offsite was 0.0141 versus onsite results of 0.18506 pCi/g.	one sample (02) result was below zero; two samples (08,14) results were <0.1 pCi/g for Ac-228.	1	C. Bell	NA	1	One sample counted a day later, suggesting potential for substitution.	1	No sampler/surveyor name in SUPR. No static survey date and time.	NA	Explain why the Two samples were analyzed offsite (07, 14). Explain why Results for sample 14 are inconsistent: K-40 offsite was -0.0214 versus onsite value of 4.2189 pCi/g; Bi-214 offsite was 0.0141 versus onsite results of 0.18506 pCi/g	NA	NA	NA	NA	NFA	
UC-3	TU178	2	TJ	Building 820	TU 166, TU 177 ,TU 179	900	AC-228, Bi-214, and K-40 bias samples have lower mean and lower variability than FSS_SYS samples.	Final systematic samples display characteristics of at least two different data populations for K-40.	1	1. Gamma static measurements range from 5,004 to 5,632 cpm. 2. Gamma static dataset is less variable and inconsistent with gamma scan data and final systematic sample results. 3. Gamma scan performed on 08/24/2010 at 09:30, before collection of biased and final systematic samples. Gamma scan range reported at 3,920 – 7,060 cpm, with an investigation level of 7,204 cpm. 4. Gamma scan dataset is	FSS samples were collected on 08/24/2010. Final set of confirmatory/biased samples were collected on 08/24/2010.	1. Two bias samples (1 and 2) and two final systematic samples (27 and 28) were sent to the offsite lab for confirmation. 2. The onsite lab reported higher Bi-214 results for samples 1, 2, 27, and 28 than the offsite lab. 3. The onsite lab reported higher Ra-226 results for samples 1, 2, 27, and 28. The Ra-226 results reported by the onsite lab were below the investigation level.	1. One biased sample (sample 7) and one final systematic sample (sample 27) have an unusually high Bi-214 result. 2. One final systematic sample Ac-228 (sample 27) has an unusually high result. 3. One biased sample (sample 7)	1	C. Bell	NA	1	Final systematic samples display characteristics of at least two different data populations for K-40.	1	No sampler/surveyor name in SUPR.	NA	Explain why the gamma static data is inconsistent anad less variable with gamma scan data range?	NA	NA	NA	NA	Resample	
UC-3	TU179	2	TJ	NA	TU-166, TU-172, TU-173, TU-178, TU-180	850	Form notes, "The mean for K-40 is 12.35 pCi/g, which is nearly twice the activity of the surrounding four TUs. TU181, while not immediately adjacent to this TU, also indicated K-40 activity averages consistent with this TU. High K-40 levels are common in sand." Bi-214 data has low variability.	The K-40 and Ac-228 plots indicates multiple data sets. The high Ac-228 and K-40 results are indicative of pipe trench bedding sands with high NORM activity.	1	The static and scan data is inconsistent (4,978-5,459 cpm). This data appears to represent meter variations and not the activity variations found in the field survey. Scan range for the 2350-1 Instrument is 4,380 – 7,170 cpm. The 3-sigma investigation level for the 2350-1 Instrument is 7,200 cpm.	Final systematic samples were collected on 09/1/2010. FSS samples were analyzed on 09/1/2010 and 09/2/2010.	Two sample were analyzed offsite (05 and 08) and were consistent with the onsite results, except for samples 08 (K-40), where onsite was 13.8 pCi/g and offsite was 4.7 pCi/g. Cs-137 and Ra-226 results were equivalent	Samples 15, 17, and 18 indicated higher than average Ac-228 activity, which does not correlate to elevated activities for other plot isotopes. The activity of K-40 is high compared to other HPNS soils in most of the TU179 FSS samples. Bedding	1	C. Bell	NA	1	Scan and static data appear to represent instrument variability, not TU 179.	1	No sampler/surveyor name in SUPR.	Resample due to falsification of gamma scan and gamma static data, low variability Bi-214 data, evidence of multiple populations in K-40 and Ac-228 datasets.	Explain why the gamma static data is inconsistent anad less variable with gamma scan data range?	NA	NA	NA	NA	NFA	
UC-3	TU180	2	TJ	NA	TU-166, TU-172, TU-173, TU-178, TU-179	857	Form notes, "The K-40 plot indicates high and low variations from the mean and indicate multiple populations of samples in the data set. The high activity samples are indicative of the possible bedding sands with high NORM activity. The low activity samples are likely fill original fill material with low K-40 concentrations. Bi-214 dataset has very low variability."	Bi-214 and Ac-228 sample 8 indicates lower than normal concentrations for all three plotted isotopes and should be evaluated (possible data quality issue). The K-40 plots indicate high and low variations from the mean and indicate multiple populations in the data set samples. The high activity samples are indicative of the possible bedding sands with high NORM activity. The low activity samples are likely fill original fill material with low K-40 concentrations.	1	Scan range for 2350-1 Instrument is 4,810 – 6,930 cpm 3 sigma investigation level for 2350-1 Instrument is 7,200 cpm.The static data (4,841-5,279 cpm) are inconsistent with the scan data. All static readings are at or near the lower range of the scan measurements. This data appears to represent meter variations and not the activity variations found in the field survey.	FSS samples were collected on 09/2/2010. FSS samples were analyzed on 09/2/2010. No confirmatory/biased samples were collected.	Two samples were analyzed offsite (01 and 02) and were consistent with the onsite results, except for K-40. Sample 01 presented: onsite 8.91 pCi/g and offsite 13.9 pCi/g. Cs-137 and Ra-226 results were equivalent.	Sample 8 indicates lower than normal concentrations for all three plotted isotopes and should be evaluated (possible data quality issue). K-40, Bi-214, Ac-228	1	A. Smith	NA	1	Static data appears to represent instrument variability, not TU 180.	1	No sampler/surveyor name in SUPR.	Resample due to falsification of gamma static data, low variability Bi-214 data, evidence of multiple populations in K-40 dataset.	Explain why the static data are inconsistent with the scan data? Explain why the three isotopes are lower than normal in Sample 8?	NA	NA	NA	NA	NFA	
UC-3	TU181	2	TJ	NA	TU-170, TU-173, TU-175, TU-180, TU-182	893	Form notes, "Usually small variance of FSS samples for Bi-214, but variance is consistent with adjacent TUs and is not as low as other TUs onsite."	K-40 FSS_SYS plot has slope breaks indicating the potential for at least two different populations.	1	Gamma static dataset is inconsistent with scan data. Static Range: 4,580 to 4,846 cpm The static readings were performed by a suspected worker and appear anomalous. The range of static readings is below the reported scan range and the low variability of static measurements does not capture the variability observed in the soil sample results. Scan Range: 5,270 to	FSS samples were analyzed on 09/7/10 and 09/8/10. Samples were collected on 09/7/10 and 09/8/10.	Two samples analyzed offsite (01 and 06): Sample 01 is inconsistent: Ac-228 onsite result was 0.29 pCi/g while the offsite result was 0.0 pCi/g (error bars overlap) Bi-214 onsite result was 0.34 pCi/g while the offsite result was -0.04 pCi/g (error bars do not overlap). Sample 06 is consistent. This issue is typical of HPNS data and not directly indicative of falsification.	NA	1	R. Roberson	NA	1	Static data appears to represent instrument variability, not TU 180.	1	No sampler/surveyor name in SUPR.	1. Gamma scan conducted before FSS Samples collected suggesting potential that samples were only collected in areas with low readings. 2. Resample due to falsified gamma statics, potential failure to collect representative FSS samples, very low variability in Bi-214 data, evidence for multiple populations in K-40 dataset.	Explain why the static data are inconsistent with the scan data? Explain why there is a difference between offsite vs onsite data?	NA	NA	NA	NA	NFA	
UC-3	TU182	2	TJ	NA	SU-173, SU-175, SU-181, SU-183	929	Form notes, "Low variability for Bi-214 and Ac-228; but this variability is consistent with adjacent TUs."	Ac-228 and K-40 plots have slope breaks suggesting multiple populations.	1	Form notes: 1. Gamma static dataset inconsistent with scan data and Final Systematic sample dataset. Static data exhibit anomalously tight distribution, but do not directly indicate soil sample falsification. 2. Gamma static Range: 5,113 to 5,394 cpm. 3. Scan Range: 4,220 to 7,130 cpm (Investigation level: 7,204 cpm) 4. Scan survey was performed on	FSS Samples 01 through 18 were collected on 09/09/10 and 09/10/2010. Sample 18 (low Ac-228 activity) is located adjacent to TU183, which also had some low Ac-228 activity samples.	Ac-228 onsite result was 0.29 pCi/g while the offsite result was 0.0 pCi/g (error bars overlap) Bi-214 onsite result was 0.34 pCi/g while the offsite result was -0.04 pCi/g (error bars do not overlap). Sample 06 is consistent.	One sample (18) result is near zero.	1	C. Bell	NA	1	Gamma statics range is only 279 cpm, which is most likely instrument variability.	1	Sampler name not in SUPR.	Resample due to probable falsification of gamma statics data, very low variability Bi-214 data, and evidence of multiple populations for K-40 and Ac-228.	Explain why the static data are inconsistent with the scan data?	NA	NA	NA	NA	NFA	
UC-3	TU183	2	TJ	815	TU-182, TU-184, TU-166, TU-176	891	Bi-214 has very low variability.	Two or more possible data populations for K-40. Ac-228 also appears to have a slope break indicating two populations.	1	1. Static survey date and time are not provided in SUPR. 2. Static Survey dataset is consistent with scan data Gamma static dataset consistent with scan data. 3. Scan Range =3120- 6870 (investigation level = 7,240 cpm)	FSS Samples were collected on 9/14/2010 and samples counted on 09/14/2010 and 9/15/2010	Comparison intermediate (limited offsite analyses available for comparison with FSS samples)	One FSS sample result is at or below zero. Ac-228	1	C. Bell	NA	1	Two possible data populations for K-40	1	No sampler/surveyor name in SUPR. No static survey date and time.	NA	NA	NA	NA	NA	NA	Resample	
UC-3	TU185	2	TJ	NA	TU-168, TU-188, TU-345	814	Form notes, "Ac-228 and K-40 contain outliers on the higher end of the distribution"	Form notes, "Ac-228 and K-40 activities indicate the potential for at least two different data populations"	1	1. Scan surveys and systematic sampling were performed in TU185. TU 185 had a total surface area of 814 square meters. 2. No measurements above the investigation level were identified during the performance of gamma scans in TU185. Therefore, no additional surveys or sampling were performed. No date or time was recorded for the static survey in the SUPR. 3. Scan survey was performed on	FSS Soil Samples were collected 9/24/2010 and Samples were counted on 9/27/2010 and 9/28/2010	Two samples for TU185 were sent offsite for analysis. One sample had an RPD of 19% which is acceptable and one with an RPD of 48% which indicates high bias by the onsite lab	Anomalously low activity concentrations with a result below zero Ac-228	0	NA	C Hughes	1	Activities for Ac-228 and K-40 indicate potential for at least two data populations	1	No sampler/surveyor name in SUPR. No static survey date and time.	NA	Explain why activities for Ac-228 and K-40 indicate potential for at least two data populations	NA	NA	NA	NA	Resample	
UC-3	TU187	0	TJ	NA	TU-187 connects to TU-174 on the north, TU-189 on the east, TU-166 and TU-169 on the south and TU-184 on the west	757	Low variability Bi-214.	K-40 FSS_SYS plot has slope breaks indicating the potential for at least two different populations.	1	Static survey date and time was not provided in the SUPR. Gamma static dataset is consistent with scan data Scan survey performed on at 10/05/2010 at 08:30 before FSS sample collection.	FSS samples were collected on 10/05/2010. One confirmatory/biased sample was collected on 10/05/2010. Samples were counted on 10/05/2010 and 10/06/2010.	Comparison indeterminate (limited offsite analyses available for comparison with FSS samples)	One FSS sample result was at or below zero. Ac-228	1	C. Bell	NA	0	NA	1	No sampler/surveyor name in SUPR.	NA	NA	NA	NA	NA	NA	NFA	
UC-3	TU188	2	TJ	NA	TU 168 and TU 190	870	Bi-214 has very low variability. K-40 also appears to have low variability	Form notes, "Ac-228 and K-40 samples indicate the potential for at least two different data populations"	1	No date or time is provided in the SUPR. The Static measurements are on the low end of the gamma scan range. The scan performed on 10/06/10 at 13:15 after the commencement of sampling. Gamma scan range was reported at 2,440 to 6,990 cpm with an investigation level of 7204 cpm. Scan data are consistent with static measurements and less than the scan threshold.	Sample was collected on 10/06/10, one biased sample was collected on 10/06/10 samples counted on 10/08/10	Two samples were sent offsite for analysis This yielded one detectable Ra-226 offsite result. The resulting RPD was 97%	1. BI-214: Two results near zero 2. Ac-228 Three results near zero 3. Five results less than 2 pCi/g	1	C. Bell	NA	1	activities for Ac-228 and K-40 indicate potential for at least two data populations	1	No sampler/surveyor name in SUPR. No static survey date and time.	NA	Explain why activities for Ac-228 and K-40 indicate potential for at least two data populations	NA	NA	NA	NA	Resample	
UC-3	TU189	2	TJ	NA	TU 187 and TU 190	623	Ac-228 samples have a standard deviations that is greater than the mean. Bi-214 has very low variability.	Form notes, "All three plotted radionuclides have systematic sample results that indicate the potential for at least two different data populations"	1	No date or time was recorded for the static survey in SUPR. Static measurements are on the higher side of the scan range and consistent with the scan. Scan performed on 10/15/2010 at 14:00 after the commencement of the sampling. Gamma scan range was reported at 3,080 to 6,750 cpm, with an investigation level of 7,204	1. Samples were collected on 10/15/2010 2. All FSS samples were analyzed on 10/27/10 (12 days later)	Only one ore two samples had detectable Ra-226 activity for both laboratories the comparison yielded an RPD of 121%.	Form notes, "FSS Systematic Samples indicate the potential for at least two data popluations" for Bi-214. "Five FSS Systematic sample results were reported with values less than zero" for Ac-228. "FSS Systematic samples indicate the	1	C. Bell	NA	1	All three plotted radionuclides have systematic sample results that indicate the potential for at least two different data populations	1	No sampler/surveyor name in SUPR. No static survey date and time.	NA	Explain why Bi-214, Ac-228 and K-40 have systematic sample results that indicate the potential for at least two different data populations	NA	NA	NA	NA	Resample	

Summary of EPA review of Parcel UC-1,2,3 and D-2 Trench Units - Interim Draft [Insert date]

Number of TU's					**% of Parcel UC's & D-2 total**	
Parcel D-2	**Parcel UC-1**	**Parcel UC-2**	**Parcel UC-3**	**Total**		
7	12	8	21	48	100%	Total trench units in Parcel UC's & D-2
Navy reviewed 70 total Trench Units to look for signs of potential falsification						
4	3	0	16	23	57%	Navy recommended confirmation sampling due to signs of potential falsification
2	0	0	0	2	29%	Navy recommended reanalysis of archived samples
1	9	8	5	23	14%	Navy recommended NFA = No further action due to signs of falsification, but potential further action due to uncertainty
EPA reviewed the 23 Trench Units recommended for NFA						
				0	0%	EPA score 0 = No specific findings of particular concern
				0	0%	EPA Score 1 = Need further review
				0	0%	EPA Score 2 = Need resampling before determination that the record supports ROD requirements met
1	9	8	5	23	100%	Not yet reviewed
Total Navy and EPA recommend for resampling						
4	3	0	16	23	57%	

Trench Unit					Overall score (0, 1, or 2)

Draft Interim EPA and DTSC review of Parcel UC-1,2,3 & Parcel D-2 Rad Data Eval

	Trench	Fill	Building Sites	Total	% of total
Tota Survey Units in Parcels UC-1,2,3 & D-2	48	80	0	128	100%
Navy recommended resampling	23	55	0	78	61%
Navy recommended reanalyzing archived samples	2	0	0	2	2%
EPA, CDPH, DTSC recommend resampling			0	0	0%
Total recommended resampling	23	55	0	78	61%
No signs of falsification found in data			0	0	0%
EPA not yet reviewed			0	0	0%
% of total recommended resampling	48%	69%	0%	61%	

Breakdown for Fill

Total	% of total	D-2	UC-1	UC-2	
80	100%	5	26	20	**Tota Survey Units in Parcels UC-1,2,3 & D-2**
55	69%	4	14	13	**Navy recommended resampling**
0	0%	0	0	0	**Navy recommended reanalyzing archived samples**

The above was for Parcel B alone. Below is for entire Shipyard.

Total Survey Units in Hunters Pt Tetra Tech EC	*305*	*514*	*
Parcels D-2 & UC-1,2,3 as % of total	16%	16%	*

* Parcel B has 7 former building sites, which is 21% of the total 34. The above chart shows survey units at building sites.
The number of survey units at building sites for the entire site was not available.

Parcel B Examples of issues and their prevalence

	Trench Unit	No gamma static and scan	Weight difference	>=2 results Zero or negative			
Total	66	16	5	30	0	0	0
% of total	100%	24%	8%	45%	0%	0%	0%
	TU001	1		1			
	TU002	1		1			
	TU003	1		1			
	TU004	1		1			
	TU005	1					
	TU006	1		1			
	TU007	1	1	1			
	TU008	1					
	TU009	1					
	TU010						
	TU011	1					
	TU012	1		1			
	TU013	1		1			
	TU014	1					
	TU015						
	TU016	1					
	TU017						
	TU018			1			
	TU019	1	1	1			
	TU020	1		1			
	TU021			1			
	TU022			1			
	TU023			1			
	TU024			1			
	TU025						
	TU026						
	TU027						
	TU028			1			
	TU029						
	TU030						
	TU033						
	TU036			1			
	TU037						
	TU039			1			
	TU040		1	1			
	TU041						
	TU042			1			
	TU043						
	TU044		1				
	TU045			1			
	TU046						
	TU047						
	TU048						
	TU049			1			
	TU050						
	TU050A						
	TU051						
	TU051A						
	TU052						
	TU053			1			
	TU054			1			
	TU055						
	TU056			1			
	TU058			1			
	TU060		1	1			
	TU061			1			
	TU062						
	TU062						
	TU063						
	TU064			1			
	TU065						
	TU125			1			
	TU126						
	TU127						
	TU128						
	TU59		1				

Parcel	Trench Unit	Suspect name (1=yes, 0=no)	Name, if suspect	Name, if not suspect
D-2	TU031	0		J. Rosenhagen
D-2	TU032	1	R. Zahensky	
D-2	TU034	0		P. Vigil
D-2	TU035	0		C. Schultz
D-2	TU038	0		P. Vigil
D-2	TU134	1	A. Smith	
UC-1	TU133	1	C. Bell	
UC-1	TU139	1	A. Smith	
UC-1	TU146	1	C. Bell	
UC-3	TU170	1	R. Roberson	
UC-3	TU172	1	C. Bell	
UC-3	TU173	1	A. Smith	
UC-3	TU174	1	C. Bell	
UC-3	TU176	1	C. Bell	
UC-3	TU178	1	C. Bell	
UC-3	TU179	1	C. Bell	
UC-3	TU180	1	A. Smith	
UC-3	TU181	1	R. Roberson	
UC-3	TU182	1	C. Bell	
UC-3	TU183	1	C. Bell	
UC-3	TU185	0		C Hughes
UC-3	TU187	1	C. Bell	
UC-3	TU188	1	C. Bell	
UC-3	TU189	1	C. Bell	